

Applicant respectfully submits that no fee is due for re-submission and consideration of the Information Disclosure Statement re-filed herewith. As discussed above, these papers were timely filed by the Applicant and received in due course by the USPTO. It is respectfully requested that the information cited in the enclosed Information Disclosure Statement be considered by the Examiner and that a copy of the enclosed Form PTO-1449 be returned indicating that such information has been considered.

The Examiner has rejected claims 17-40 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 53 and 55 of U.S. Patent No. 5,002,953. Applicant understands this rejection to be a rejection of all of the claims over claim 53 and all of the claims over claim 55, but not a rejection of all of the claims over a combination of claims 53 and 55 of US '953. The Examiner acknowledges that the claims are not identical, but contends that the claims are not patentably distinct because the compounds' use for hyperglycemia is claimed. The Examiner further contends that the specification allegedly "properly equates" hyperglycemia and Type II diabetes. Applicant respectfully traverses this rejection and the Examiner's characterization of hyperglycemia and Type II diabetes.

Applicant respectfully submits that pending claims 17-40 in the subject application are nonobvious over claims 53 and 55 of U.S. Patent No. 5,002,953.

M.P.E.P §804 sets out the factual inquiries for determining whether double patenting exists. The first steps in the analysis consist of determining the scope and content of the patent claim(s) and prior art relative to the claim(s) in the application at issue, and the differences thereof. The last step is to evaluate any objective indicia of nonobviousness. Because of the significant differences between the scope of the claims at issue, Applicant makes no determination of the level of skill in the pertinent art.

Attached hereto is a claim chart comparing claim 53 of US 5,002,953 and claim 17 of the subject application. For the purposes of this comparison, Applicant respectfully submits that claim 53 is representative of claim 55 of US '953 and that claim 17 is representative of claim 18 of the subject application.

Applicant submits that there are notable differences between the scope and content of the claims of US '953 and the claims of the subject application that render the pending claims patentably distinct. A primary difference between these claims lies in the scope of the compounds that may be used in the various claimed methods of treatment. Claims 53 and 55 of US '953 recite the use of a compound of formula (I), as recited in claim 1, or a tautomeric form thereof and/or pharmaceutically acceptable salt thereof and/or a pharmaceutically acceptable solvate thereof. Claim 1 consists of a generic definition of the compounds of formula (I). This

definition is intended to encompass, at least, the compounds of each of the 36 examples of US 953.

In contrast, the scope of the compounds that may be used in the claimed methods of treatment in the subject application is limited to the specific compound, 5-(4-[2-(N-methyl-N-(2-pyridyl)amino)ethoxy]benzyl)-2,4-thiazolidinedione (claim 17) and a pharmaceutically acceptable salt thereof (claim 18), or a tautomeric form thereof, or a pharmaceutically acceptable solvate thereof.

Applicant respectfully submits that there is nothing in claims 53 or 55 of US 952, considered alone or in combination with any prior art, that would render obvious the selection of any single compound that is encompassed within the genus of claim 53 or 53, let alone the selection of a compound of any one of Examples 1-36, and specifically, the selection of 5-(4-[2-(N-methyl-N-(2-pyridyl)amino)ethoxy]benzyl)-2,4-thiazolidinedione, or a pharmaceutically acceptable salt thereof for use in the claimed method of treatment. {"The fact that a claimed compound may be encompassed by a disclosed generic formula does not by itself render that compound obvious." *In re Baird*, 16 F.3d 380, 382, 29 USPQ2d 1550, 1552 (Fed. Cir 1994). The Federal Circuit has declined to extract from *Merck & Co. v. Biocraft Laboratories Inc.* 873 F.2d 804, 10 USPQ2d 1843 (Fed. Cir. 1989) the rule "that regardless of how broad, a disclosure of a chemical genus renders obvious any species that happens to fall within it." *In re Jones*, 958 F.2d 347, 350, 21 USPQ2d 1941, 1943 (Fed. Cir 1992)}.

In addition, Applicant respectfully submits that the presently claimed methods of treatment of Type II diabetes are distinct from the previously claimed methods of treatment of hyperglycemia (or hyperglycaemia). Moreover, contrary to the Examiner's assertion, Applicant wishes to make clear that the subject specification does not equate the treatments of hyperglycemia and Type II diabetes. The specification at page 1, lines 17-21 reads:

"It has now surprisingly been discovered that certain novel substituted-thiazolidinedione derivatives show improved blood-glucose lowering activity and are therefore of potential use in the treatment and/or prophylaxis of hyperglycemia and are of particular use in the treatment of Type II diabetes."

Applicant respectfully notes that there is nothing in the above statement that equates the treatment of hyperglycemia with the treatment of Type II diabetes. If anything, the statement distinguishes between the use of the novel compounds for such treatments. In particular, the statement reads that the novel compounds of the invention are of "potential use in the treatment and/or prophylaxis of hyperglycemia" and that these compounds are of "particular use in the treatment of Type II diabetes."



Applicant notes that it is established that hyperglycemia is a "condition". Black's Medical Dictionary (35th ed. 1987), defines 'hyperglycemia' to mean:

"an excess of sugar in the blood, the condition accompanying diabetes mellitus. The amount of sugar normally present in the blood is dependent upon how much sugar has been consumed, but in the fasting state it runs around 80 to 100 milligrams per 100 milliliters of blood. A fasting blood glucose level of sugar above this is regarded as hyperglycemia; in diabetes mellitus (qv) the sugar may rise to four or five times that amount."

The Cecil Textbook of Medicine (1988 Edition) defines diabetes as a "disease syndrome" which can be classified into five categories (Table 231-1), as follows:

- (1) Insulin dependent, or Type I diabetes;
- (2) Non-insulin dependent, or Type II diabetes;
- (3) Secondary diabetes, including diabetes arising from pancreatic disease or a hormonal imbalance, drug-induced diabetes and diabetes associated with specific genetic syndromes;
- (4) Impaired glucose tolerance; and
- (5) Gestational diabetes.

See the complete definition of "diabetes mellitus" in Black's Medical Dictionary and Cecil's Textbook of Medicine in the Information Disclosure Statement filed herewith. Each of these disease syndromes is associated with conditions other than hyperglycemia. Accordingly, treatment of hyperglycemia could comprise treatment of Type II diabetes or another category of diabetes, such as secondary diabetes, impaired glucose tolerance or another disease syndrome of which hyperglycemia is a condition associated therewith.

Applicant respectfully submits that treatment of the specific disease syndrome, Type II diabetes, is distinct from the treatment of the condition, hyperglycemia.

In view of the foregoing remarks, Applicant respectfully submits that the claimed invention is non-obvious and patentably distinct from claims 53 and 55 of US 953 and that subject application is in condition for allowance. If the Examiner has any remaining objections or concerns, the Examiner is respectfully requested to contact Applicant's undersigned attorney to resolve such issues and advance the case to issue.

#### **INFORMATION DISCLOSURE STATEMENT**

In compliance with the duty of disclosure under 37 C.F.R. §1.56, and in accordance with the practice under 37 C.F.R. §1.97, the Examiner's attention is directed to the documents listed



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on the enclosed Form PTO 1449. A copy of each of the listed documents is also enclosed. The filing of this Information Disclosure Statement should not be construed as an admission that any particular listed reference is effective prior art or discloses or renders obvious any aspect of the claimed invention.

This statement is being filed under the provisions of 37 C.F.R. §1.97(c)(2), before the mailing date of a Final Office action or before the mailing date of a Notice of Allowance. Please charge the \$180.00 fee specified in 37 C.F.R. §1.17(p) to the Deposit Account No. 19-2570.

It is respectfully requested that the above information be considered by the Examiner and that a copy of the enclosed Form PTO-1449 be returned indicating that such information has been considered.

In the event that payment of additional fees is required for the timely processing of these papers, authorization is hereby provided to charge any fees under 37 C.F.R. §1.16 or §1.17 to Deposit Account No. 19-2570.

Respectfully submitted,

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U.S. Patent No. 5,002953 Claim 53	U.S. Patent Appln. No. 08/458,033 Claim 17
A method for the treatment and/or prophylaxis of	A method for the treatment of
hyperglycaemia	type II diabetes
in a human or non-human mammal which comprises administering an effective, non-toxic amount of a compound	in a human or non-human mammal which comprises administering an effective, non-toxic amount of a compound
<p>of Formula (I)[according to claim 1]</p> <div data-bbox="276 661 885 850" data-label="Chemical-Block"> <p>The chemical structure shows a substituent A¹ attached to a nitrogen atom (N) which also has a substituent R¹. This nitrogen is connected to a chain of n methylene groups (CH₂)ₙ, which is then connected to an oxygen atom (O). The oxygen atom is connected to a group A², which is enclosed in a circle. A² is connected to a CH group with substituent R². This CH group is further connected to a carbon atom (C) which has a substituent R³ and is part of a 2,4-thiazolidinedione ring system (a five-membered ring containing a sulfur atom and two carbonyl groups).</p> </div> <p>or a tautomeric form thereof and/or pharmaceutically acceptable salt thereof and/or a pharmaceutically acceptable solvate thereof,</p>	<p>which is selected from</p> <p>5-(4-[2-(N-methyl-N-(2-pyridyl)amino)ethoxy]benzyl)-2,4-thiazolidinedione,</p> <p>a tautomeric form thereof, and a pharmaceutically acceptable solvate thereof</p>
<p>wherein:</p> <p>A¹ represents a substituted or unsubstituted, single ring aromatic heterocyclyl group having 4 to 7 ring atoms and comprising up to 4 hetero atoms in each ring selected from oxygen, sulphur or nitrogen, the substituents for the heterocyclyl group being up to 4 substituents selected from the group consisting of: C<sub>1-12</sub>-alkyl, C<sub>1-12</sub>-alkoxy, aryl and halogen or any two substituents on adjacent carbon atoms, together with the carbon atoms to which they are attached, may form an aryl group, and wherein the carbon atoms of the aryl group represented by the said two substituents may themselves be substituted or unsubstituted;</p> <p>R¹ represents a hydrogen atom, a C<sub>1-12</sub>-alkyl group, a C<sub>1,6</sub>alkylcarbonyl group, an aryl-C<sub>1-12</sub>-alkyl group the aryl moiety being substituted or unsubstituted, or a substituted or unsubstituted aryl group;</p> <p>any aryl group being phenyl or naphthyl optionally substituted with up to five groups selected from halogen, C<sub>1-12</sub>-alkyl, phenyl, C<sub>1-12</sub>-alkoxy, halo-C<sub>1-12</sub>-alkyl, hydroxy, amino, nitro, carboxy, C<sub>1-12</sub>-alkylcarbonyloxy, or a C<sub>1-12</sub>-alkylcarbonyl group;</p> <p>R² and R³ each represent hydrogen, or R² and R³ together represent a bond;</p> <p>A² represents a benzene ring having three optional substituents which may be selected from halogen, substituted or unsubstituted alkyl or alkoxy; substituents for the alkyl group being selected from the groups consisting of halogen, C<sub>1-12</sub>-alkyl, phenyl, C<sub>1-12</sub>-alkoxy, halo-C<sub>1-12</sub>-alkyl, hydroxy, amino, nitro, carboxy, C<sub>1-12</sub>-alkoxycarbonyl, C<sub>1-12</sub>-alkoxycarbonyl-C<sub>1-12</sub>-alkyl, C<sub>1-12</sub>-alkylcarbonyloxy, or C<sub>1-12</sub>-alkylcarbonyl; and</p> <p>n represents an integer in the range of from 2 to 6;</p>	
to a hyperglycaemic human or non-human mammal in need thereof.	to a human or non-human mammal in need thereof.

U.S. Patent No. 5,002,953 Claim 53	U.S. Patent Appln. No. 08/458,033 Claim 17
A method for the treatment and/or prophylaxis of	A method for the treatment of
hyperglycaemia	Type II diabetes
in a human or non-human mammal which comprises administering an effective, non-toxic amount of a compound	in a human which comprises administering an effective, non-toxic amount of a compound
<p>of Formula (I)[according to claim 1]</p> <div data-bbox="243 661 860 850" data-label="Chemical-Block"> </div> <p>or a tautomeric form thereof and/or pharmaceutically acceptable salt thereof and/or a pharmaceutically acceptable solvate thereof,</p>	<p>which is selected from</p> <p>5-(4-[2-(N-methyl-N-(2-pyridyl)amino)ethoxy]benzyl)-2,4-thiazolidinedione,</p> <p>a tautomeric form thereof, and a hydrate thereof</p>
<p>wherein:</p> <p>A¹ represents a substituted or unsubstituted, single ring aromatic heterocyclyl group having 4 to 7 ring atoms and comprising up to 4 hetero atoms in each ring selected from oxygen, sulphur or nitrogen, the substituents for the heterocyclyl group being up to 4 substituents selected from the group consisting of ...;</p> <p>R¹ represents a hydrogen atom, a C<sub>1-12</sub>-alkyl group, a C<sub>1-6</sub>alkylcarbonyl group, an aryl-C<sub>1-12</sub>-alkyl group the aryl moiety being substituted or unsubstituted, or a substituted or unsubstituted aryl group;</p> <p>any aryl group being phenyl or naphthyl optionally substituted with up to five groups selected from ...;</p> <p>R² and R³ each represent hydrogen, or R² and R³ together represent a bond;</p> <p>A² represents a benzene ring having three optional substituents which may be selected from ...; and</p> <p>n represents an integer in the range of from 2 to 6;</p>	
to a hyperglycaemic human or non-human mammal in need thereof.	to a human in need thereof.
	wherein said compound is orally administered one to six times a day
	to provide a total daily dose of 0.01 mg/kg to 21.4 mg/kg of said compound.